

## Caesarean scar ectopic, diagnostic dilemma in delayed presentation

Sook Yin Chua\*; Nyazirah Abdul Wahab; Khatijah Abu Bakar

**\*Corresponding Author: Sook Yin Chua**

Department of Imaging, Hospital Sultanah Aminah, Johor Bahru, Johor, Malaysia.

Email: sookyin943@gmail.com

### Abstract

Ectopic pregnancy in caesarean scar is rarely encountered. The characteristic imaging appearances in magnetic resonance imaging were described for caesarean scar ectopic pregnancy in early pregnancy. We presented here two cases of caesarean scar ectopic pregnancies whereby one of the cases was presenting late to us and thus posed a diagnostic challenge.

### Keywords

Caesarean scar ectopic pregnancy; magnetic resonance imaging.

### Introduction

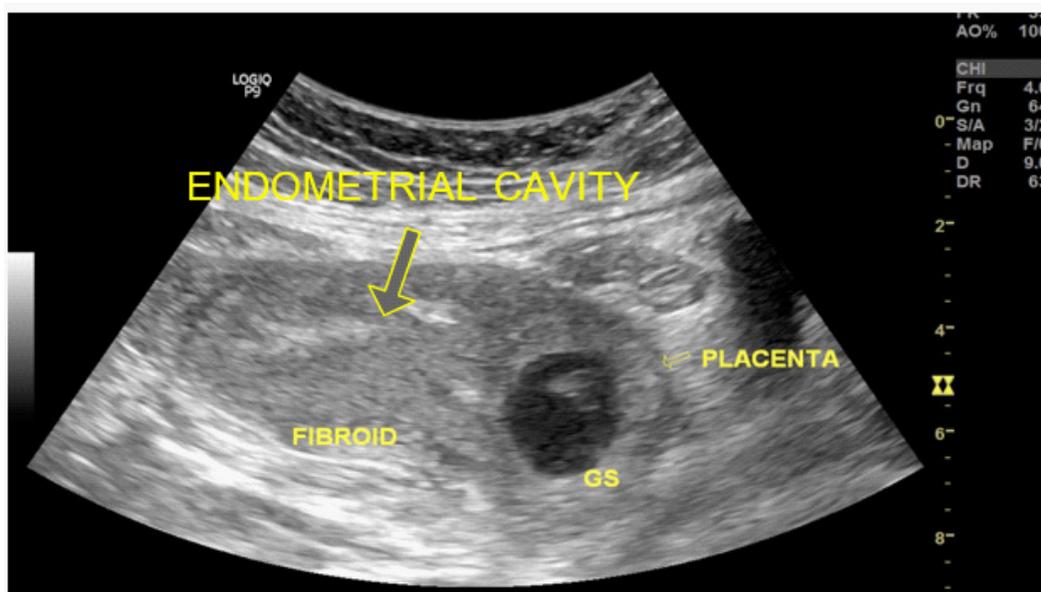
Ectopic pregnancy in the caesarean scar is abnormal embryo implantation into myometrium and fibrous tissue of the previous caesarean scar of the uterus. It is rarely encountered but with increasing incidence due to increased rate of caesarean section. Currently the incidence varies from 1:1800 to 2216 pregnancies with a rate of 0.15% in women with previous caesarean section [1]. The first case of caesarean scar ectopic pregnancy was reported in English medical literature in 1978 [2]. Untreated cesarean scar pregnancies can result in uterine rupture and severe hemorrhage [3]. Early diagnosis with the help of sonography and Magnetic Resonance Imaging (MRI) enables prompt management and improves outcome.

We are reporting two cases of Caesarean Scar Ectopic Pregnancy (CSP). The first case was diagnosed early in the first trimester. However, there was no definite diagnosis for the second case prior to delivery due to late presentation in the second trimester and was confirmed by histopathological examination.

## Case 1

42 years old G7P6 (1 set of twins) at 10 weeks of gestation with 1 previous caesarean section, complained of per vagina bleed for 3 weeks associated with suprapubic pain. Trans abdominal ultrasound showed empty uterine cavity with a gestational sac at anterior myometrium at lower uterine segment (Figure 1). Magnetic Resonance Imaging (MRI) shows gestational sac within the inferior anterior segment of the uterus with a thin layer of myometrium separating maternal urinary bladder and the gestational sac. It is associated with fluid in the pouch of Douglas (Figure 2,3).

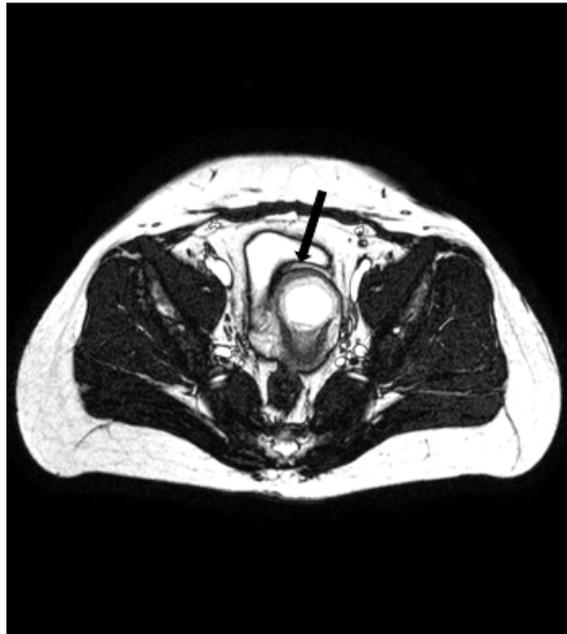
Patient subsequently underwent ultrasound guided fetocides injection for termination of pregnancy and was discharged well.



**Figure 1:** Transabdominal ultrasound showed gestational sac in the antero-inferior wall of the uterus. The uterine cavity is empty. Incidental finding of fibroid at posterior body of uterus.



**Figure 2:** Sagittal T2W image showed gestational sac at antero-inferior aspect of the uterus with a thin layer of myometrium separating from the urinary bladder (black arrow). This is the typical appearance of caesarean scar pregnancy.



**Figure 3:** Axial Balanced Turbo Field Echo (BTFE) MRI images at level of caesarean scar showed a thin layer of myometrium separating the gestational sac from the urinary bladder (black arrow).

## Case 2

31 years old lady G3P2 with previous 2 caesarean deliveries presented at 17 weeks of gestation for insulin commencement due to abnormal sugar profile. Initial ultrasound done in a primary care centre stated it as an intrauterine pregnancy.

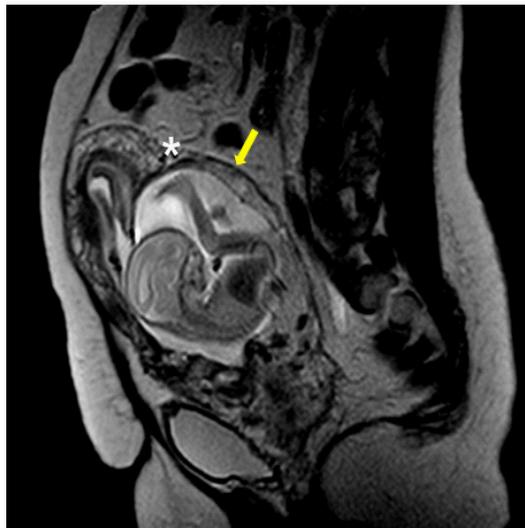
Transabdominal ultrasound showed viable fetus, corresponded to gestational age however located at the posterior wall of the uterus. There was thinning of the posterior myometrium associated with posterior bulge of the uterine wall (Figure 4).

Subsequent MRI done showed a fetal sac located in the inferior aspect of uterus with thinning of the posterior myometrial wall. There is acute angulation of myometrium at the superior part of the sac, increased suspicion of septated uterus. The placenta is located at the posterior inferior aspect of the fetal sac. The scar located anterior to the sac (Figure 5,6).

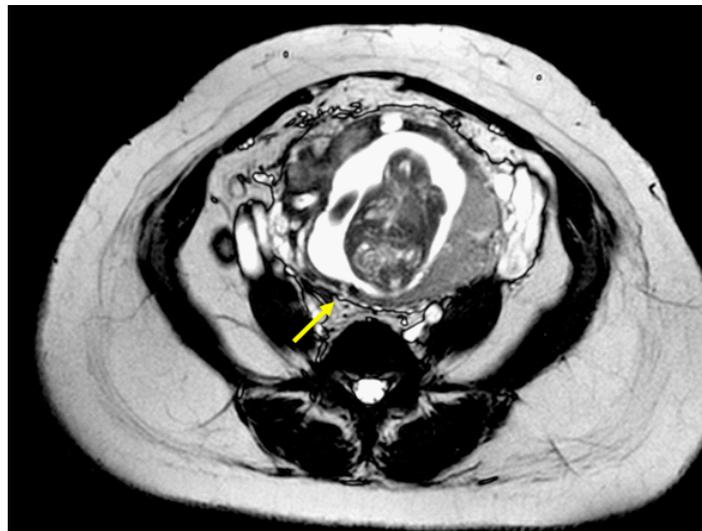
Decision was made for a planned hysterotomy and termination of pregnancy due to thinning of the uterine wall with possible ectopic pregnancy. However, the patient subsequently underwent hysterectomy due to morbidly adherent placenta and severe hemorrhage. Patient had a stormy postoperative period however discharged well. Histopathological examination confirmed a caesarean scar ectopic with a morbidly adherent placenta.



**Figure 4:** Transabdominal ultrasound image showed fetal sac at inferior- posterior aspect of uterus, with thinning of inferior myometrium.



**Figure 5:** Sagittal MRI T2W image showed fetal sac at inferior-posterior aspect of uterus with thinning of uterine wall posteriorly (yellow arrow), not typical appearance of caesarean scar pregnancy due to invasion of the sac into the myometrium. There is acute angulation of myometrium superior to sac (\*) suspicious of septated uterus.



**Figure6:** Ax BTFE MRI image at level of caesarean scar shows fetal sac with thinning of myometrium predominantly posteriorly (yellow arrow), not typical appearance of caesarean scar pregnancy.

## Discussion

The ultrasound features of CSP include gestational sac in the anterior inferior wall of uterus, thinning of myometrium anteriorly and gestational sac with echogenic margin and peritrophoblastic flow at scar site [4,5].

MRI is better at showing the thin layer of myometrium separating the gestational sac and the maternal urinary bladder wall [6]. The CSP are divided into three types in MRI, based on the features on the caesarean scar site and the growth pattern of the gestational sac [7]. In type I there is a thin-walled diverticulum visible at the caesarean scar defect. The Gestational Sac (GS) is fully or mostly embedded in the diverticulum. In type II thin-walled diverticulum is visible at the CSS defect. The GS is partially embedded in the diverticulum and partially growing into the uterine cavity. In type III a niche is visible in the CSS defect. The GS is mainly embedded in the isthmus. However, these MRI features and classification only applies to the caesarean scar pregnancy in the first trimester.

Our first case showed typical findings of scar ectopic pregnancy in the ultrasound as well as MRI images. The diagnosis was straightforward. However, in our second case, as the fetal sac is already large enough to cause distortion of uterus shape, embedded and thinning of posterior lower myometrial wall, accurate diagnosis was not able to be made preoperatively. There is no literature review regarding MRI features of CSP in the second or third trimester thus poses diagnostic difficulties for the radiologist.

The outcome of both patients are also different. The second patient developed massive hemorrhage due to placenta accreta with an eventful post operative recovery while our first patient was discharged early after treatment.

## Conclusion

Ectopic scar pregnancies pose a great risk for maternal haemorrhage. Thus timely identification and treatment of cesarean scar ectopic pregnancies are important to avoid significant morbidity and mortality.

Ultrasound and MRI are useful in diagnosis and evaluation of scar ectopic pregnancy. However, in the late presentation, the typical findings may not be appreciated. Early suspicion and diagnosis play a vital role in preventing sinister outcomes and improving the patient's survival.

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**Authors Information:** Sook Yin Chua\*; Nyazirah Abdul Wahab; Khatijah Abu Bakar  
Department of Imaging, Hospital Sultanah Aminah, Johor Bahru, Johor, Malaysia.

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